DISTRIBUIDORA OFICIAL NO BRASIL
absolut technologies
WWW.ABS-TECH.COM

TRIVISIO

User Manual

VRvision

Subject to technical modifications

Copyright: Trivisio Prototyping GmbH, Karcherstrasse 10, D-67655 Kaiserslautern

2010/10/16

WARNING

Before using the VRvision HMD please read carefully these safety instructions.

Read this handbook and use the VRvision device in strict accordance in order to prevent any damage to your eye, other injury, loss of visual functions, property damage or death.

Children under the age of fifteen may not use this product.

We strongly advise you to get familiar with the VRvision device and its capabilities before you use it for the first time.

Table of Contents

Table of Contents **3**

1 Safety Instructions **4**

1.1 Health Concerns 4
1.2 General Safety Hints 5
1.3 Warning for Electrical Products 5

2 Description **6**

2.1 Head Mounted Display HMD 6
2.2 DVI Dongle 7

3 General Operating Instructions **8**

3.1 Installing Software 8
3.2 Connecting External Video Sources 8
3.3 Attachment and Mechanical Adjustment 10
3.4 Adjusting the Interpupil Distance 11
3.5 Adjusting the Image (by Software) 12
3.6 Using Different Stereo Modes 13
3.7 Using Audio 13
3.8 Firmware update 14

4 Maintenance and Cleaning Instructions **15**

5 Troubleshooting **16**

6 Returning used electronic devices in EU countries **17**

7 Technical Data **18**

1 Safety Instructions

1.1 Health Concerns

➔ WARNING: Eye Disease, Eye Injury, and Glaucoma

If you have been diagnosed with or are susceptive to eye disease, eye injury, or glaucoma consult your doctor before use and do not use without your doctor's approval.

➔ CAUTION: Heart Disease, High Blood Pressure

If you have a history of heart disease or high blood pressure consult your doctor before use and do not use without his approval.

➔ CAUTION: Seizures

If you have a history of temporary spasm, unconsciousness, or epileptic seizures from light stimulation, consult your doctor before use and do not use without his approval.
If any of the following symptoms occur, if using VRvision, stop using immediately and rest:

- eye fatigue or irritation,
- headaches or dizziness,
- aches and pain in the neck or shoulders,
- double vision,
- nausea or motion sickness,
- inability to focus on the displays.

Misuse or overuse of this product may result in eye damage, or loss of visual functions.

DISTRIBUIDORA OFICIAL NO BRASIL
absolut Technologies
WWW.ABS-TECH.COM

1.2 General Safety Hints

- ➔ Avoid getting the cable entangled around your neck, body or arms. Use the belt pouch for the power unit and wear the cable close to your body.
- ➔ To ensure that the device does not fall off during use, always use the headband, and have it tightened with an adequate tension.

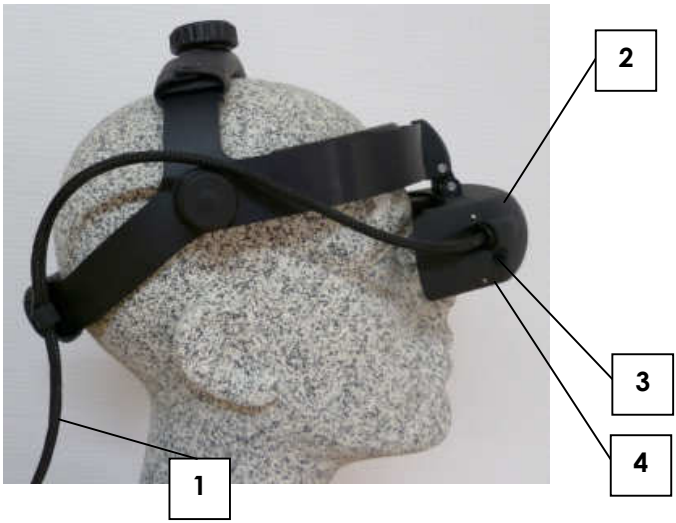
1.3 Warning for Electrical Products

- ➔ To avoid any risk of electrocution, do not bring any part of the VRvision in contact with water when the device is connected to an AC outlet (e.g. when plugged to PC).
- ➔ Avoid using and storing the VRvision at wet, humid, dusty and smoky surroundings and extreme temperatures.
- ➔ Do not use VRvision at temperatures below 0°C and above +40°C. Avoid dropping or mechanical shock, as frame and displays may be deformed.
- ➔ Always switch off and unplug the VRvision when it will not be used.
- ➔ In case of damage contact your retailer. There are no user serviceable parts. Only qualified service personnel should perform any service required on this product.

2 Description

2.1 Head Mounted Display HMD

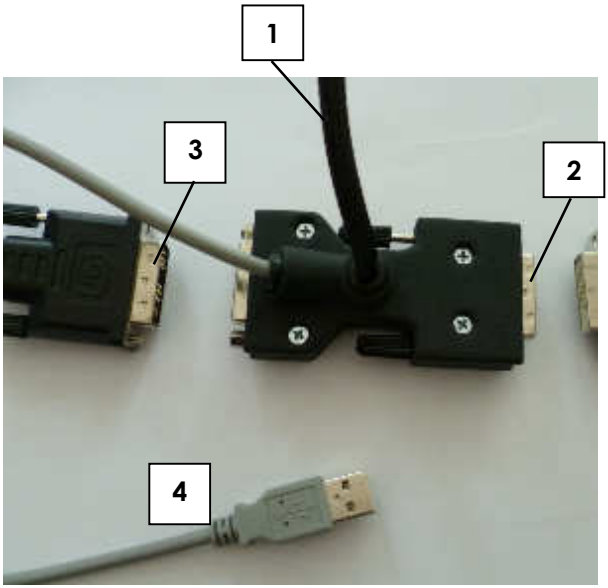
The HMD contains two **microdisplays** (2) to show the images. The **cable** (1) is permanently attached to the HMD and to the dongle element. Without a PC or external video source connected to the device there is no image visible inside the HMD ! Into the 3.5mm socket (3) earphones can be connected. There is a built-in microphone (4) on the bottom side of the case.



2.2 DVI Dongle

The DVI dongle contains the following elements:

(1) HMD cable permanently attached
(2) DVI connector, Main=Left channel
(connect to graphics card)
(3) DVI socket, Aux=Right channel
(connect by cable from 2nd DVI graphics card output)
(4) USB cable for power supply, audio and settings



3 General Operating Instructions

3.1 Installing Software

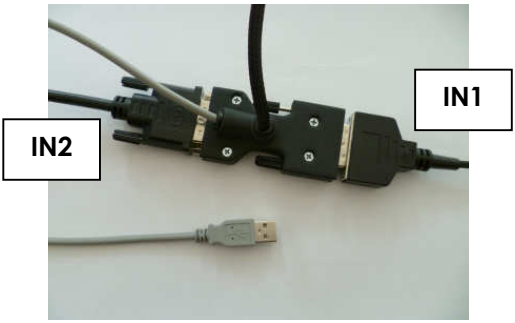
Please install the HMD adjusting software before you connect the device the first to time to your PC.

3.2 Connecting External Video Sources

To prevent damage to the electronic, first connect the video cables with your PC before you power on the device by connecting the USB cable. You can connect the device by plugging the DVI dongle directly into your graphics card (in case of HDMI output you can use converter plug) or by using DVI extender cable. This gives you Input1 (IN1) what is the main channel. You can also connect a second DVI signal to the Aux channel (IN2) from second DVI output of the same graphics card or form another graphics card, see also stereoscopic options "**Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.**" page **Fehler! Textmarke nicht definiert.**). The device will automatically recognize the correct signal.

A static image can burn into the microdisplays after an extended period of time !

DISTRIBUIDORA OFICIAL NO BRASIL
absolut technologies
WWW.ABS-TECH.COM


IN1
IN2

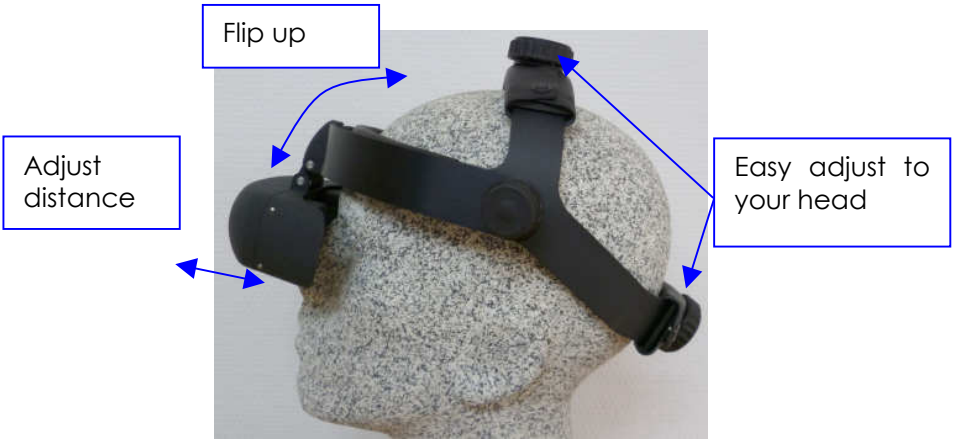
3.3 Attachment and Mechanical Adjustment

Putting on the HMD

➔ Put on the VRvision HMD. Place the headband around the back of your head and pull it just tight enough to make it fit safely and comfortably.

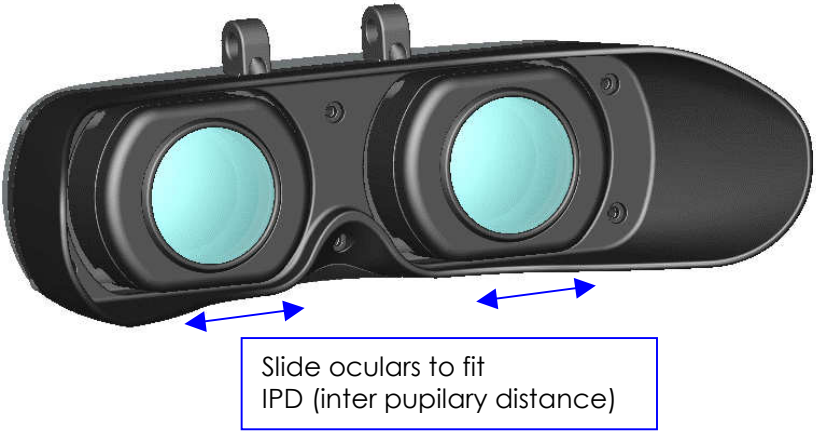
➔ On the displays inside the HMD, you can now see the pictures of your video sources.

➔ Wearing the HMD you will see your surroundings only constricted. For this reason, please, move only carefully or not at all.



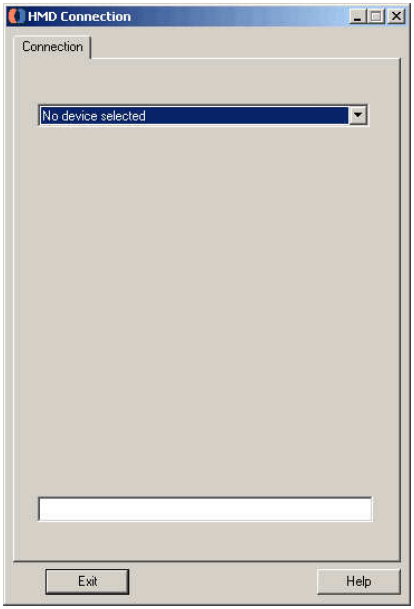
3.4 Adjusting the Interpupil Distance

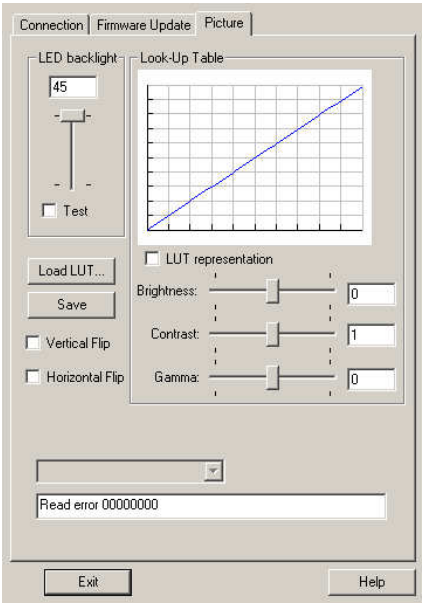
To optimize the position of the two displays, so that both images are seen as a single visual field, carefully move the oculars into the right position.



3.5 Adjusting the Image (by Software)

To adjust the image start the software "hmd_connection.exe" which can be downloaded from www.trivisio.com. Please install first the software according instructions before you connect the HMD with the PC using the DVI and USB-cable. After installation process plug in the DVI and USB cable to the PC to turn on the device. Windows will detect the hardware and install automatically. To adjust the image start the software "hmd_connection.exe" either from icon or start menu. Then select the HMD (also serial number is shown here). Then you can go to menu "Picture" and adjust the brightness, contrast and gamma of the image. You can also change the look-up table (LUT) or flip the image.

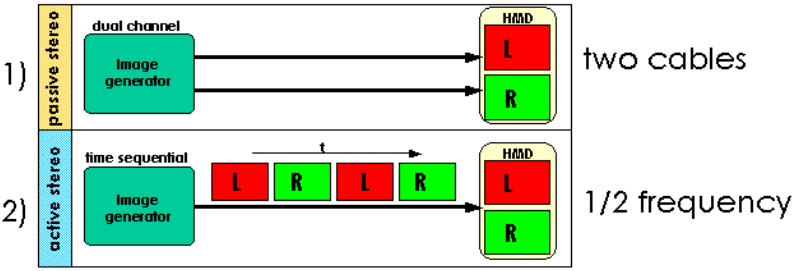




DISTRIBUIDORA OFICIAL NO BRASIL
absolut technologies
WWW.ABS-TECH.COM

3.6 Using Different Stereo Modes

The electronics of your VRvision device allows two different stereo modes. The electronic is automatically detecting when actice stereo signal is supplied by the graphics card.

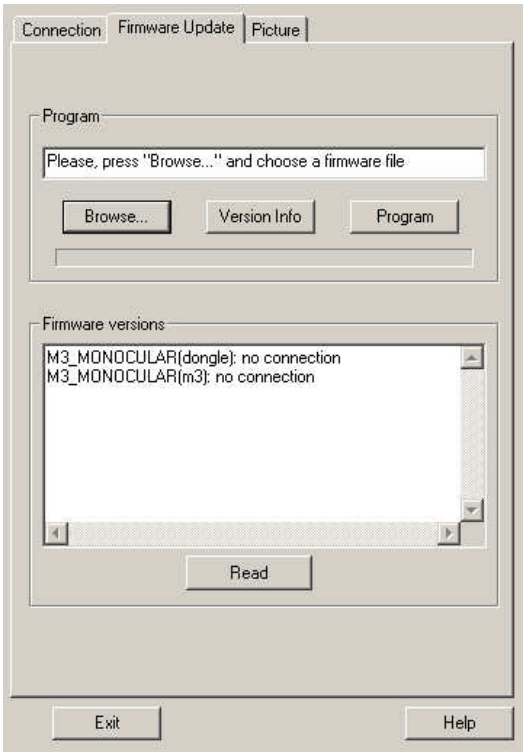


3.7 Using Audio

After connecting the USB cable to your PC, Windows will detect the built-in microphone and also the earphones as audio devices.

3.8 Firmware update

In the need of a firmware update connect the device be an USB cable to the PC and turn on the device. Then run HMD-software "hmd_connection.exe" and chose the menu of new firmware. Select the fimrware file by clicking on "Browse". The firmware is provided as "RIGHT_0x000?.hex" and "LEFT_VGA_DVI_0x000?.hex" files. Then click "Program". You should program these files one by one in above mentioned order. After programming the last file the device will turn off automatically. During the update process never unplug the device and do not shut down the computer and do not turn off the power ! If the device fails to turn on, try to reprogram "LEFT_VGA_DVI_0x000?.hex" file, holding power-button pushed during programming process.



4 Maintenance and Cleaning Instructions

To clean the HMD and control unit, use a damp cloth. A light rinsing agent may be added to the water. Do not use any detergents.

To clean the oculars of the HMD use a dry, clean cloth.

In case of damage contact your retailer. There are no user serviceable parts. Only qualified service personnel should perform any service required on this product.

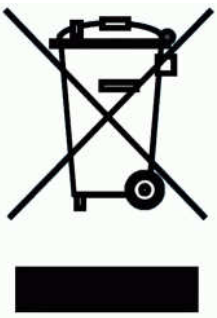
5 Troubleshooting

Problem	Cause	Remedy
Only dark, or only white image	Incorrect brightness.	See HMD software and adjust correct
No image	No DVI signal applied	Connect a video source (SVGA)
No image	Wrong resolution or frequency from grapics card	Set 800x600@60Hz
No image	Appliance switched off, no power connected	Plug USB cable to PC

All other problems should be performed by a trained and authorised service provider !

DISTRIBUIDORA OFICIAL NO BRASIL
absolut technologies
WWW.ABS-TECH.COM

6 Returning used electronic devices in EU countries

	This HMD and accessories shall not be treated as household waste. The separate collection is a condition for reuse, recycling and utilisation of used electronic devices, which ensures the protection of resources. To comply with german ElektroG (Rucknahme und Entsorgung von Elektro- und Elektronikaltgeraten) and european WEEE (Waste Electrical and Electronic Equipment) electronic used devices from private households can be returned free of charge. For details please contact your local distributor or directly Trivisio Prototyping GmbH (www.trivisio.com).

7 Technical Data

Microdisplays 2x	SVGA AMLCD 800x600 color (equals 1,440,000 pixels)
Display Color	24 bit
Frame Rate	60fps
Overlap	100%
Field of View	41.8° diagonal (4:3, 33.7° (horiz), 25.2° (vert))
Distortion	3.1% (horiz), 1.9% (vert),4.0% corner
Eye distance (IPD)	55-72mm adjustable
Eye Relief	27mm
Eye Motion Box	7mm (horiz) x 6mm (vert)
Video Interface	DVI-D
Stereoscopic Modes	Mono, passive stereo, active stereo
Audio (via USB)	Microphone integrated, 3.5mm socket for headset
Cable Length	2.2m (optional 5m)
Power Consumption	Display 2.5W (5V, taken from USB port)
Operating Temperature	0°C to +40°C
Weight	210 g (without headband)
Dimensions (W/H/D):	150mm x 42mm x 69mm

Subject to technical modifications